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ABSTRACT

This fastback distills the essential features of critical thinking, as identified by prominent specialists in the field, and presents them in a way that is immediately usable in the classroom. After presenting a definition of critical thinking, the fastback discusses the necessary elements of critical thinking--dispositions, criteria, argument, reasoning, point of view, and procedures for applying criteria and judging. The fastback also presents an example of critical thinking in action and a discussion of using critical thinking. It addresses the trouble with critical thinking and discusses why critical thinking is so important. Contains 19 references and 11 resources for further study. (RS)

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Critical Thinking

Barry K. Beyer

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Critical Thinking

by
Barry K. Beyer

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Introduction

Can your students judge the quality of

- a newspaper account or editorial about an important event?
- a poem, short story, play, novel, or other work of fiction?
- a popular TV show or movie?
- a written argument about a current social, civic, economic, or political issue?
- a proposed invention for making a new or improved product?

And can they produce a convincing argument that justifies their judgment?

If not, can you provide the kinds of thinking experiences that would enable them to do so?

America's schools often do not teach students to think critically — and do not realize that they are not doing so. This fastback distills the essential features of critical thinking, as identified by prominent specialists in the field, and presents them in a way that is immediately usable in the classroom. The information is by no means all you need to know about critical thinking, but it is a start. Resources at the end of this fastback will be useful for further study.

A Definition of Critical Thinking

At the risk of over-simplification, critical thinking, briefly, means making reasoned judgments. "Reasoned" means arrived at by logical thinking, and "judging" consists of determining the degree to which a thing meets a standard, a rule, or other criteria.

Teachers continually engage in critical thinking. When students respond to our questions, we judge the accuracy of their responses before accepting or responding to them. We are thinking critically when we evaluate student writing or projects and when we assign grades. In everyday life, we think critically when we make purchases at a store or plan a vacation. In each of these instances we are judging the quality of something — information, assertions, events, or other phenomena — against some criteria.

Critical thinking is not making decisions or solving problems. It is not the same as reflective thinking, creative thinking, or conceptualizing. Each of these other types of thinking serves a specific purpose. We make decisions in order to choose among alternatives. We solve problems when we encounter an obstacle to a preferred condition. We engage in creative or conceptual thinking to invent or improve things. Critical thinking serves a purpose quite different from these other types of thinking.

The purpose of critical thinking is to ascertain the degree to which some phenomenon meets some criterion or the extent to which it is an authentic instance of a specifically defined phenomenon. The word

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critical in critical thinking comes from the Greek word for criterion, *kriterion*, which means a benchmark for judging. In its most limited, perhaps purest, sense critical thinking is judging the reasonableness or soundness (logical validity) and truthfulness (accuracy) of statements or, in philosopher Richard Paul's (1990) words, the extent to which a conclusion is plausible or warranted by the evidence. In its broadest sense, critical thinking is judging the quality of anything. Whenever we evaluate our own cooking, someone else's performance of a task, the accuracy of a newspaper or TV account, a work of art, or a researcher's conclusion, we are applying criteria to make a judgment — we are engaged in critical, or criterial, thinking.

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Essential Elements of Critical Thinking

Critical thinking — or critical mindedness, as it is sometimes called — includes at least six distinguishing elements:

dispositions
criteria
argument
reasoning
point of view
procedures for applying criteria and judging

Thinking critically involves the complex and often simultaneous interaction of these elements in the search for the most accurate understanding of an object, condition, event, action, or other phenomenon.

Dispositions

Sometimes referred to as habits of mind, dispositions are habitual ways of behaving. Good critical thinkers are disposed to skepticism, questioning the accuracy, authenticity, plausibility, or sufficiency of whatever is presented to them. Because they value reasons and evidence as measures of accuracy and plausibility, they habitually give reasons and evidence to support their own assertions, claims, and conclusions. And they want others to behave similarly.

Critical thinkers also are open-minded, suspending judgment until they have as much relevant, accurate information as possible (Ennis

1985; Paul 1990). Because they value fair-mindedness — knowing that they, like all human beings, may be biased in favor of their own feelings or preferences — they deliberately search for and give weight to information and opinions that counter what they believe or wish were true (Marzano 1992; Nickerson 1988-89).

The dispositions most characteristic of critical thinking have been identified by a number of specialists in this field (Ennis 1985; Krathwohl et al. 1964; Paul 1990). In their collective judgment, expert critical thinkers habitually:

- are skeptical,
- are fair-minded,
- are open-minded,
- respect evidence and reasoning,
- respect clarity and precision,
- consider different points of view, and
- willingly change a position when reason and evidence warrant.

These and related habits of mind, such as intellectual humility, courage, perseverance, and integrity (Paul 1990), are sometimes referred to as the core of "critical mindedness." They initiate as well as guide and sustain critical thinking.

Criteria

Critical thinking involves the application of criteria to make judgments (Lipman 1988, 1991). Criteria are conditions that must be met for something to be judged as faithful (truthful, flawless, plausible, perfect) or authentic. Criteria serve as benchmarks against which we judge the quality of what we are examining. Knowledge of — and knowing how to create — criteria appropriate to the kind of judgments we seek to make is an essential element of critical thinking.

Critical thinking uses a variety of criteria. Lipman (1991) identifies some of these as values, standards, definitions, officially established requirements, precedents, rules, and test results. Of these, standards play

a major role. A standard is a degree or level of desired attainment. Judgments about the quality of an assertion, for example, are determined primarily by how well it meets a certain standard. For a statement to be believable, it must meet be based on credible sources, be unbiased, and be factually accurate. To assess the quality of any statement, we use these and other standards as criteria for making our judgments.

Several generally accepted standards exist for statements of any kind (Ennis 1985; Paul 1990). These standards cut across all subjects. Thus to be accepted as truthful, an assertion must, at the very least, be:

- based on relevant, accurate facts;
- based on credible sources;
- precise;
- unbiased;
- free from logical fallacies;
- logically consistent; and
- strongly reasoned.

To these standards, some specialists in critical thinking add others, such as significance, depth, fairness, adequacy, and completeness (Paul 1990).

Standards vary in complexity. Some are defined by only one or two attributes. Other have multiple attributes. The credibility of a written source, for example, is determined by whether its author has a reputation for accuracy, is writing from personal expertise, and uses accepted data-gathering and processing procedures.

Following are three standards for critical thinking and their defining attributes (Ennis 1985).

1. Credibility of an observation:
   - A short time between observation and the report of it.
   - A personal report by the observer.
   - Minimal inference.

- Reporter's belief that the observation is accurate.
- Corroboration by other sources.

2. Credibility of a written source:
   - Reputation of its author for accuracy.
   - Writing in the author's field of expertise.
   - Absence of conflict of interest.
   - Known risk to author's reputation.
   - Use of accepted data-gathering and processing methods.
   - Agreement with other sources.

3. The strength of a conclusion:
   - Based on reasonable assumptions.
   - Consistency with known facts.
   - Competing conclusions are inconsistent with known facts.
   - Explains the evidence.
   - Is reasonable.

While much critical thinking is domain- or subject-specific (Lipman 1991; Norris in McPeck 1990), many critical judgments cut across several disciplines and subjects. Assessing the accuracy of a communication, the strength of a claim, or the strength of an argument are examples. We make these judgments in reading newspapers, studying technical reports, evaluating scientific studies, reading historical accounts, listening to politicians, or watching TV news. Ten kinds of critical thinking judgments (often described as skills) that cut across all subject domains can be used to ascertain the truth, accuracy, or plausibility of a communication (Beyer 1987; Browne and Keeley 1990; Ennis 1962; Paul 1990). They are:

- Distinguishing the relevant from the irrelevant.
- Distinguishing between verifiable facts, value claims, and reasoned opinions.
- Determining factual accuracy.
- Determining the credibility of a source.

- Identifying ambiguous claims or arguments.
- Identifying and examining unstated assumptions.
- Detecting bias.
- Identifying logical fallacies.
- Identifying logical inconsistencies.
- Determining the strength of an argument.

In addition to these common judgments, each knowledge domain makes critical judgments unique to its field.

One reason we may not always be effective at critical thinking is that we do not know the criteria that is most relevant or appropriate for making a particular kind of judgment. When this occurs, we may invent our own criteria. However, if these invented criteria are not shared and accepted by other people, the judgments based on them are likely to be rejected or at least debated. Thus it is important to know and apply accepted criteria in making important critical thinking judgments. Acting on shared criteria allows us to make decisions or resolve problems without controversy and without wasting time, energy, or other resources.

Not all thinking is critical thinking. Here's a small test. Which of the following questions require critical thinking?

1. Does this paper merit an A, B, C, or F?
2. What did the teacher do in conducting this class today?
3. How good a class did you have today?
4. What is the meaning of the Ashanti saying, "We see what is behind our eyes?"
5. Did Columbus discover America?

Clearly, question 1 requires making a judgment by applying the criteria for A, B, C, or F grades. Questions 3 and 5 also require "criterial" thinking. However, questions 2 and 4 do not. Instead, they require analysis — taking something apart, identifying the relationships among the parts and to the whole, and identifying a basic structural

principle. Neither question requires the application of criteria to judge quality. Only questions 1, 3, and 5 require critical thinking.

Argument

The word *argument* often means a disagreement, difference of opinion, or dispute. This is not what it means in critical thinking. In critical thinking an argument is a proposition with its supporting evidence and reasoning. A simple argument consists of: 1) a proposition (also called an assertion, claim, or conclusion); 2) facts, principles, and other evidence given as reasons in support of the proposition; and 3) reasoning that connects these to each other and to the assertion (Scriven 1976; Toulmin et al. 1984).

We hear or read arguments daily, even in our classrooms. For example, a student may say:

> It's my turn to use the restroom pass. You said that whenever we finished our work, we could use the pass. Susie, Joey, and Miranda have already used it. I'm finished, so it's my turn to use it.

In this argument, the first sentence states the assertion. The remaining sentences seek to convince the listener that the claim is valid and should be honored. The evidence and reasons are deductively presented. Sentence 2 is a general principle on which the claim is based and serves as the premise (reason). The remaining two sentences present two additional reasons, which lead from the major premise to the claim. The final phrase, starting with "so," repeats the initial claim. The "so" serves as a "therefore" and indicates that what follows is the logical conclusion.

A more complete argument provides not only these elements but also alternative claims with evidence and reasoning that refutes these. It also may include qualifiers that state any conditions that limit the validity of the claim. If the preceding argument were to be more complete, it might include the following sentences immediately before the final sentence:

> Everyone else in the class is here, so no one else is using it. I can see the pass on your desk. And no one else is asking to use it. We still have plenty of time before class ends, too.

In this extension, the speaker presents potential counter-claims and reasons why they are invalid. An argument that presents qualifiers and refutes potential counter-claims usually is considered to be a stronger argument than one that simply presents a claim with several supporting reasons.

The major purpose of an argument in critical thinking is to persuade or convince. Arguments serve as the principal form by which we justify the results of our thinking, whether those results are solutions, conclusions, hypotheses, factual claims, judgments, decisions, or anything we assert to be true, accurate, or correct. Thus arguments are a constant object of scrutiny as we analyze and evaluate them to determine the degree of certainty or weight we should give to the claim presented.

There are strong arguments and weak arguments; that is, there are arguments that you can believe or trust because they are well grounded or supported with evidence and logically reasoned, and there are arguments that are not well grounded and not well reasoned. To be considered a strong argument, an argument should meet specific criteria (see, for example, Scriven 1976). It should give:

- A clear position — no vague or ambiguous words or phrases.
- Convincing reasons for the claim — reasons that are significant and sufficient in number.
- Counter-claims with convincing reasons why they are invalid.
- Relevant, accurate facts.
- Qualifiers or any conditions that limit the claim.
- A logical order of premises that lead conclusively to the claim.

Critical thinking requires skill at identifying arguments and distinguishing them from other forms of communication, such as narratives, descriptions, and explanations. It also requires skill in evaluating and in constructing arguments. In carrying out these tasks, all the other fea-

tures of critical thinking come into play (Browne and Keeley 1990; Toulmin et al. 1984).

Reasoning

Reasoning is the cement that holds an argument together. The term describes the process whereby we infer from facts and assumptions (Lipman 1991).

Operationally, reasoning involves inferring a "conclusion" (claim, assertion) from one or more premises. Conclusions arrived at deductively (going from the general to the specific) are certain (Marzano 1992; Scriven 1976; Siegel 1990). Conclusions arrived at inductively (going from the specific to the general) are only probable at best.

In critical thinking we attempt to ascertain the strength of a conclusion by examining reasoning and logical relationships. Reasoning can be difficult to spot because it often is not explicit. If we use words such as "given," followed by a statement; "then," followed by a consequence; and "therefore," followed by a logical conclusion, it would be easier to see reasoning because these words signal reasoning in action. However, most communications are less explicit. Judging the logic that ties statements together around a claim usually requires us to infer the intended reasoning.

Being able to engage in logical reasoning, identify it, and detect fallacies in it are central to effective critical thinking (Damer 1980). We think critically about reasoning and reasons so that we can 1) determine how well-grounded conclusions are and 2) strengthen weak conclusions by finding stronger grounds and establishing tighter logical relationships.

Point of View

One's point of view is literally the position from which one perceives and makes meaning of anything. One's point of view develops from prior experience, cultural background, values, expectations, in-

terests, existing knowledge, and so on. Because each of us lives a different experience from others, a point of view is individual. Yet, because many people share some cultural, ethnic, class, work, and professional experiences, a point of view also may have some elements in common with those of others.

A person's point of view shapes what he or she chooses to observe, read, or attend to. It is like a filter; as experience passes through it, it is transformed. The Ashanti of Ghana have a saying that aptly describes the way point of view works: "We see what is behind our eyes." We make our own meanings; meaning is not something that happens outside of us.

Point of view limits as well as enables meaning-making. A person looking out over the Grand Canyon sees only what is ahead but not what is on either side, below the rim, or behind the viewer. Another person standing on the opposite side looking across the same Grand Canyon sees an entirely different view. The only way to get an accurate — total — view of the Grand Canyon is to look at it from a variety of viewpoints. The same is true in considering claims, conclusions, and statements. In the words of Matthew Lipman (1991, p. 54):

> [O]bjectivity is multifaceted, with each perspective serving to corroborate or supplement or negate what is revealed from this or that other perspective.

Critical thinkers, in their search for soundness and accuracy, examine data, assertions, conclusions, and other information from many different points of view in order to understand it completely.

Procedures for Applying Criteria

Unlike other types of thinking, critical thinking does not use a single, general procedure. Rather, a number of procedures, including asking questions and making judgments, are initiated, informed, and driven by what we know 1) about a subject or domain, 2) about the kinds of judgments that can or should be made, and 3) about the criteria we need to use.

In critical thinking, questioning focuses on establishing meaning and accuracy. Often called Socratic questioning, this type of questioning seeks to clarify information, to identify point of view, to discover assumptions, to distinguish factual claims from value judgments, and to detect flaws in reasoning (Browne and Keeley 1990; Ennis 1962; Paul 1990). Above all, critical thinkers also ask questions to elicit, clarify, and test the evidence and reasoning offered to support or refute claims and assertions; they also probe to identify inferences, implications, and consequences.

According to Richard Paul (1990) and Robert Marzano (1992), Socratic questioning involves:

- seeking reasons and evidence,
- looking for implications and consequences,
- finding and reflecting on assumptions,
- seeking examples and analogies,
- looking for objections,
- identifying and taking different view points or perspectives,
- distinguishing what is known from what is believed, and
- detecting inconsistencies, overgeneralizations, and vagueness.

Socratic questioning probes beneath superficial appearances or perceptions to identify the central, basic meaning or quality of a thing.

Those who are skilled at critical thinking ask such questions almost instinctively, because they have learned that such questions get at the things that undermine the quality of knowledge claims or the application of criteria of quality. They value ascertaining the truth of things in taking action, solving problems, or making decisions. Asking effective questions is a learned behavior. It can be taught.

Another procedure involves answering the kinds of questions asked by critical thinkers. Most critical thinking judgments are made by applying selected criteria in order to assess quality. Philosophers and others use and recommend specific procedures for making judgments. For example, philosopher Michael Scriven (1976) recommends the following procedure for determining the strength of any argument:

1. Clarify the meaning of the argument.
2. Identify the stated and unstated conclusions.
3. Determine which premises support which conclusions.
4. Identify any unstated assumptions.
5. Determine the reliability and reasonableness of the inferences and premises.
6. Consider other relevant arguments.
7. Make a final judgment about the overall argument.

In this process, identifying assumptions is important but often neglected. Assumptions, unstated or stated, serve as grounds for believing a claim or conclusion is true and are part of the chain of reasoning that links to the claim. In the previous example of an argument, for instance, it is assumed but not stated that Susie, Joey, and Miranda are the only ones other than the speaker who have finished their work and met the given condition for using the restroom pass. Part of the strength of the argument rests on the accuracy of this assumption.

Critical thinkers also make other kinds of judgments. For example, to judge the credibility of a source (newspaper account, newscast report, book, person), we apply certain criteria. One procedure for applying these criteria (Beyer 1987) is:

1. Identify the kind of judgment to be made (credibility, bias, etc.).
2. Identify (recall, find, or invent) the criteria to be used and any clues or indicators of these criteria.
3. Search piece by piece (line by line, if a written source) to find indicators related to the criteria.
4. Identify any pattern among the indicators or evidence.
5. Match the indicators and evidence to the criteria.
6. Determine the degree of match.
7. State the extent/degree of fit between the communication being judged and the criteria being used.

An Example of Critical Thinking in Action

One way to understand what critical thinking is and how it works is to do it and then to reflect on the process. The account that follows is excerpted from testimony given before Great Britain's Parliament in 1824 during an inquiry into conditions in Britain's factories. It was published under the title, "Such Slavery, Such Cruelty" (Cobbett 1824). Keeping the title in mind, judge the quality of this statement:

> Some of the lords of the loom employ thousands of miserable creatures in the cotton-spinning work. The poor creatures are doomed to toil day after day fourteen hours in each day in an average heat of eighty-two degrees. Can any man with a heart in his body refrain from cursing a system that produces such slavery and such cruelty?
>
> These poor creatures have no cool room to retreat to, not a moment to wipe off the sweat, and not a breath of air. The door of the place wherein they work, is locked except at tea time. If any spinner be found with his window open, he is to pay a fine.
>
> For a large part of the time the abominable stink of gas assists in the murderous effects of the heat which the unfortunate creatures have to inhale. Children are rendered decrepit and deformed and thousands upon thousands of them die before the age of sixteen.

What is your judgment about the quality of this statement?

1. Explain your judgment as persuasively as you can to a colleague who also has read this excerpt.
2. Listen carefully to your colleague's judgment.

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3. Reflect on what you did to arrive at your judgment. What did you do first and why? What did you do next? Continue describing, as specifically as possible, what you did to produce your judgment.

Did you look at this account critically (criterially) or simply conjure up images from the author's report? Did your thinking reflect the habits of mind typical of critical thinkers: skepticism, open-mindedness, fair-mindedness, and suspended judgment? What questions did you ask of this account? Did you focus on certain standards against which to judge this statement and then use them as criteria for making your judgments? What did you look for? Bias? Unstated assumptions? Factual claims or value judgments? Support for the author's assertions? What evidence did you find?

Finally, what is your judgment about the quality of this account? How well does your judgment stand up — how strong is the reasoning and evidence you gave in support of your judgment? What can you add or revise to make your argument stronger?

Remember, critical thinking requires a disposition to be skeptical, but open-minded and fair-minded, about the world around us. Critical thinkers habitually question the authenticity of anything that confronts them to ascertain exactly the extent to which it is an authentic instance of what it purports to be. In addition, they make judgments based on certain standards or other measures that serve as criteria for plausibility and truthfulness. And they pay special attention to the reasons and reasoning that undergird conclusions and claims. When we engage in critical thinking, we combine all of these elements. Did you?

Using Critical Thinking

We use and teach critical thinking because it can help to process ideas and information more effectively. There is an intrinsic value in judging the quality of a thing as measured against accepted criteria. Humans possess a natural desire to know things as they really are, not as they appear to be through distorted impressions. Thus we use critical thinking because it is instrumental in recognizing and producing things of value. Critical thinking is seldom an end in itself. By finding a weak conclusion through critical thinking, we can make it stronger. By determining that a claim is inaccurate, we can move toward a well-grounded conclusion or solution of our own.

Good critical thinkers think critically about their own thinking. As they create an argument, they think critically in order to be accurate and so that the argument is as strongly reasoned as possible. As they design a new football or basketball play, they think critically in order to make it as effective as possible. After they write a report, they think critically about it in order to meet the criteria their readers will use to judge its quality. The application of critical thinking to one's own thoughts is not done to justify or rationalize an insubstantial point of view or conclusion. Rather, critical thinking, as philosophers Lipman (1991) and Paul (1990) assert, is self-correcting in intent. We engage in critical thinking about our own hypotheses, plans, conclusions, assertions, or products of our creative handiwork in order to make them stronger, more authentic, more plausible, or more accurate.

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Critical thinking also is used in conjunction with other kinds of thinking, such as solving problems, making decisions, conceptualizing, and creating (synthesizing); but it is not synonymous with any of these processes. For example, in making good decisions individuals often go through the following procedure (Beyer 1988):

- defining the problem,
- identifying the criteria of the "best" decision,
- identifying alternatives,
- predicting likely consequences and costs of each alternative,
- evaluating the presumed consequences of each alternative in terms of the criteria of the "best" choice, and
- selecting the alternative that most nearly approximates the criteria of the "best" choice.

Each of these steps involves several mental operations, but only two — identifying criteria and evaluating the presumed consequences — specifically involve critical thinking. Yet, as philosopher Robert Ennis (1962, 1985) asserts, critical thinking is required at various other points in the process of deciding. For example, predicting the likely consequences of an alternative requires synthesizing; however, completing this step also requires us to distinguish relevant from irrelevant information, check the accuracy of facts, distinguish factual claims from value judgments, identify hidden assumptions, and identify and use different points of view. All of these latter operations require critical thinking judgments.

Critical thinking is used similarly in solving problems. At various points, such as defining the problem, we engage in making judgments about accuracy, strength, credibility, sufficiency, and relevance. And so it is with other kinds of thinking as well. Critical thinking is used in the service of most kinds of thinking or creative activity.

Finally, critical thinking is used to understand, learn, and apply subject matter in school and on the job. Critical thinking is used whenever we want to determine the quality of a conclusion in any subject. It can

be applied to carry out major cognitive tasks anywhere, as well as to learn and teach the subjects included in school curricula. Critical thinking is a most versatile and essential form of thinking.

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The Trouble with Critical Thinking

As useful as it is, not everyone practices critical thinking. Most of us make snap judgments at times and may be disinclined to do serious critical thinking about issues and problems, especially when the conclusion to be evaluated is our own making (Perkins in Beyer 1987; Lipman 1991). Critical thinking is hard work. It requires knowledge of criteria and how to apply them in a variety of contexts. It also requires habits of mind — suspending judgment, questioning unsubstantiated assertions and the credibility of sources — that run counter to our natural inclinations. Applying critical thinking often requires reading between the lines, tracing the logic of an argument, finding unstated assumptions and unstated criteria, and determining the quality of factual claims.

Critical thinking also requires considerable mental effort and persistence. Probing beyond what is presented to us requires digging for evidence of assertions. We run up blind alleys more often than not. And it takes time to winnow useful information from a mix of findings.

Critical thinking can be risky for students and teachers. When one thinks critically about the assertions of others, one risks offending them and being considered a pain in the neck. Furthermore, critical thinking can lead to adopting an unpopular position.

When we think critically about the products of our own thinking, we risk tearing apart an argument or idea that we worked very hard to produce. This can stifle any further desire to create such products in

the future. This can undermine our self-esteem so much that, in self-defense, we refuse to engage in anything but the most routine thinking — or non-thinking — again.

Teaching critical thinking even can disrupt our own teaching! When students question our claims, the sources we use, our assumptions, and the quality of our arguments, they force us, as teachers, to be more careful about the assertions we make. Student challenges can interrupt careful teaching plans. Adults or community organizations who question the teaching of critical thinking may bring pressure on us or on the school to "cease and desist" in this teaching.

Being aware, in advance, of the potential risks and problems inherent in critical thinking and in teaching critical thinking allows us to prepare accordingly. And the more we know about critical thinking, the better we can do it ourselves, explain it to others, and help our students learn how to do it.

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Why Critical Thinking?

Why is proficiency in critical thinking so important? Why is it worth becoming better at it and helping students become more skilled than they already are at critical thinking? Thomas Jefferson probably answered these questions best when he wrote, "A democracy cannot survive unthinking citizens."

Being a thinking citizen in a democracy and in a rapidly changing world requires the ability to make judgments about information related to personal, social, economic, and political issues. To do this well requires critical thinking. Report after report by business, government, education, and civic leaders indicate that our students do not think as critically as they could or should:

> Students seem satisfied with their initial interpretations of what they have read and seem genuinely puzzled at requests to explain or defend their points of view. As a result, responses to assessment items requiring explanations of criteria, analysis of text or defense of a judgmental point of view were in general disappointing. Few students could provide more than superficial responses to such tasks, and even the "better" responses showed little evidence of well developed problem-solving or critical-thinking skills. (Quoted in Perkins 1992, pp. 28-29)

Sustained and purposeful attention to the essential elements of critical thinking is vital. If we and our students engage skillfully in critical thinking, we will benefit personally and as a nation. Student levels of

achievement will improve; they will score higher on tests; they will understand subject matter at a deeper, longer lasting, and more useful level than ever before (Perkins 1992).

For example, a student who has developed a high degree of competence in critical thinking can scrutinize a newspaper editorial, select criteria, judge the information in terms of these criteria, and write a persuasive argument justifying a tightly reasoned judgment. A student skilled in critical thinking also will be more likely to apply it in his or her personal life as well. When someone hands this student something to inhale or drink and says, "Go ahead, take this. It won't hurt you," the critical thinker will question the soundness of the assertion and the credibility of the source.

Students in a democracy, as Jefferson asserted, ought to be competent in critical thinking in order to separate truth from falsehood, the accurate from the inaccurate, and the sound from the unsound in personal as well as civic affairs. Proficiency in critical thinking clearly is a measure of the success of our education system. As Grant Wiggins has so eloquently stated:

> The sign of a poor education . . . is not ignorance. It is . . . the thoughtless habit of believing that one's unexamined, superficial or parochial opinions and feelings *are* the truth; or the habit of timid silence when one does not understand what someone else is talking about. (1989, p. 57)

Skilled use of critical thinking enables us to kick these unthinking habits. And overcoming them is precisely why developing skill in critical thinking is so worthwhile. Only teachers who understand what critical thinking is and deliberately engage in it can help youngsters improve their own critical thinking skills. Think about it, then do it.

Resources

Quick Reviews

Beyer, Barry K. "What Philosophy Offers to the Teaching of Thinking." *Educational Leadership* 47 (February 1990): 55-60.

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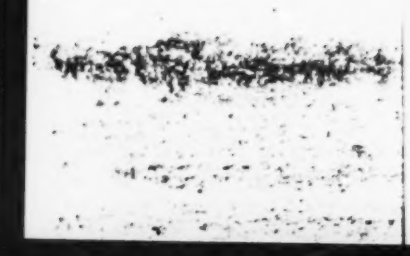

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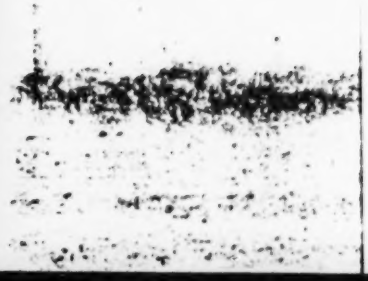

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George H. Reavis (1883-1970) entered the education profession after graduating from Warrensburg Missouri State Teachers College in 1906 and the University of Missouri in 1911. He went on to earn an M.A. and a Ph.D. at Columbia University. Dr. Reavis served as assistant superintendent of schools in Maryland and dean of the College of Arts and Sciences and the School of Education at the University of Pittsburgh. In 1929 he was appointed director of instruction for the Ohio State Department of Education. But it was as assistant superintendent for curriculum and instruction in the Cincinnati public schools (1939-48) that he rose to national prominence.

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